USE OF HERBAL MEDICINES DURING PREGNANCY, PARTURITION AND SIX WEEKS POSTPARTUM BY WOMEN IN UTAH

by

Claire Anne Sunderland

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SUPERVISORY COMMITTEE APPROVAL

of a thesis submitted by

Claire Anne Sunderland

This thesis has been read by each member of the following supervisory committee and by majority vote has been found to be satisfactory.

Chairma , Tarmina, R.N., M.S.

Christine Gillies, R.N., M.S.

H. Woolley, M.D.

THE UNIVERSITY OF UTAH GRADUATE SCHOOL

FINAL READING APPROVAL

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I have read the thesis of Claire Anne Sunderland in its final form and have found that (1) its format, citations, and bibliographic style are consistent and acceptable; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the Supervisory Committee and is ready for submission to the Graduate School.

M. Suzanne Tarmina, R.N., M.S.
Member, Supervisory Committee

Approved for the Major Department

Linda K. Amos, Ed.D., F.A.A.N.
Chairman/Dean

Approved for the Graduate Council

Dean of The Graduate School

ABSTRACT

A sample population was drawn from all women in the state of Utah who delivered live births between January 1 and November 1, 1981 to examine herbal practices followed during pregnancy, parturition and six weeks following delivery. Spoerke (1980) provided the foundation regarding herb use, mode of action, and toxicity of many of the herbs cited in the study. Areas which were assessed included specific herbs utilized; frequency, method, time, purpose and perceived efficacy of the herb used; and educational sources utilized by the respondents.

The instrument used was a questionnaire designed by the researcher. Data received were in nominal form. Frequency distribution, percentage, mean and chi square were the statistics used in the analysis.

One-fourth of the respondents returning the questionnaire reported use of herbs. No association was found between herb use and age, educational level, or residence in a rural or urban county. No conclusions could be drawn regarding the association between marital status, religious preference, race, or prenatal/

obstetrical care provider because of sampling methods and size. The highest incidence of herb usage was during pregnancy; relatively few herbs were used during the six weeks following delivery; and no herbs were utilized during parturition. Average number of herbs used per respondent during pregnancy was three. During the six weeks following delivery, each of eight respondents used one herb, and one respondent used seven. Frequency of herb use ranged from one to 120 times per month. The educational source considered most important by the respondents was LDS friends and relatives.

Replication of the research utilizing a larger stratified sample is recommended in order to obtain a more accurate view of herb use during pregnancy, parturition, and six weeks following delivery. Actual knowledge of herbs needs to be established in both the lay and health care professional populations. Empirical investigations should be conducted to ascertain effects of herb use upon the fetus.

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CHAPTER I

INTRODUCTION

Currently there exists a trend to return to using natural foods and substances. Associated with this trend is an increase in the use of plant products, which may be partially categorized as follows: alternatives, which promote a gradual and beneficial change in the body and restore it to normalcy; anthelmintics, which rid the body of worms and parasites; astringents, which contract organic tissue and thus reduce secretions; cathartics, which stimulate evacuation of the bowel; diaphoretics, which induce perspiration and thus promote elimination; diuretics, which stimulate and increase volume and secretion of urine; and emmenagogues, which promote proper menstruation and solve gynecological problems (Woolley, 1981). The herbs that were the focus of this investigation are those which are used during pregnancy, parturition, and the postpartum period.

Purpose

The purpose of this research was to describe the current use of herbal medicines by women in Utah during

pregnancy, parturition and six weeks postpartum.

Significance of the Study

Many effects that plant products have upon the body are not known or fully understood (Lewis, 1978). Furthermore, many consumers of herbal medicines are not aware of the potential danger in these substances -- the assumption is made that because these preparations are purchased from retail stores that they have been tested and found safe for human use (Lewis, 1978). For example, chamomile has caused anaphylactic shock or allergic rhinitis in persons sensitive to ragweed pollen (Lewis, 1978). Another plant product with known deleterious side effects is pennyroyal oil. The Denver Poison Control Center reported that one of two women who had used pennyroyal oil as an abortifacient suffered lethal side effects resulting in disseminated intravascular coagulation, massive hepatic necrosis, and subsequent death. The other woman did not suffer any ill effects (Sullivan, Rumack, Thomas & Peterson, 1979). Documentation of knowledge regarding the use and adverse effects of herbs is needed in order to determine if and where educational intervention is needed.

Pritchard and MacDonald (1976) wrote that

> . . .with rare exception, any drug that exerts a systemic effect in the mother will cross the placenta to reach the embryo and fetus" (p. 259),

which leads to speculation regarding the effect of herbs upon the unborn fetus. This investigation provides the foundation for further research of possible teratogenic effects of herbs.

Nurses need to be cognizant of herbal practices which may be followed so that these practices can be incorporated into the care of the pregnant and post-partum patient. The consumer of herbs needs to be aware of the benefits and dangers associated with herbal usage. Part of nurses' responsibility should be to educate the pregnant consumer to potential benefits and dangers of herbal medications.

CHAPTER II

REVIEW OF LITERATURE

Historical Perspective

Plant products have been used since ancient times by many cultures. Most plants exhibiting medicinal properties were discovered by accident, defined by trial and error and passed down from generation to generation (Lucas, 1966). The earliest Egyptian document, the Papyrus Ebers written in the second century B.C., documented the use of myrrh, cummin, peppermint, caraway, fennel, olive oil, and licorice. The Chinese Emperor Shen-ung wrote the first book about medicinal herbs in 3,000 B.C. Use of ginseng was also recorded in the Atherva Veda, the ancient book of India (Lucas, 1966).

Early usage of herbs on the North American continent can be traced back to the early American Indians. For example, the Cherokee Indians introduced golden seal to the early settlers who used it as a tea for treatment of indigestion, fever, and weakness (Lucas, 1966). Indians in the Utah Territory used herbs and roots to control the symptoms of illness rather than treating the underlying condition (Rose, 1939). These Indians felt that

controlling the symptomatology gave the patient's own defense mechanisms the opportunity to take care of the underlying pathology. Examples of common remedies that were used were arbutus for rheumatism; lobelia for treatment of cough and cold; sage, golden seal, flowering dogwood, and prickly ashberries for fever; pennyroyal for headache; and sassafras and sarsparilla for purifying the blood (Rose, 1939).

Early Mormons were great subscribers of herbal medicine. Mr. Thompson's Botanical Cure was seen as a complement to the Word of Wisdom since there was reference in the Book of Mormon to the use of herbs and roots by ancient Nephites, nursing the sick back to health (Heinerman, 1875). When the Mormons relocated in the Utah Territory they brought their herbal practices with them.

According to the custom of the day women were attended by midwives, not physicians, during childbirth. Early Mormon midwives, such as Patty Sessions, Mary Jane Meeks, and Ellen Meeks Hoyt, used herbal preparations in caring for clients. Tea made from raspberry leaves was given to women before, during and after birth (Noall, 1944). Golden seal was viewed as a cureall and as a means to allay nausea during pregnancy; holy thistle was used to increase lactation (Heinerman, 1975).

Use of Herbs

An herb is defined as a plant or plant part valued for the medicinal qualities possessed (Webster's New Collegiate Dictionary, 1979). An herb may be used as an infusion (a preparation made by boiling water and then adding leaves and stems); a decoction (a solution made by adding water to roots or bark which is then brought to a boil); as an encapsulation (the herbal plant part is ground and put into capsule form); or as a douche (instillation of herbal solution into the vagina) (Woolley, 1981).

The following herbs have been identified as being beneficial when used during pregnancy, parturition and lactation: red raspberry; blue cohosh; golden seal; chamomile; holy thistle; marshmallow; valerian root; ginseng; squaw vine; and bayberry. Herbal combinations used include blood purifying combination; female reproductive organ aid; five-week formula; vaginal bolus; and antimiscarriage formula. Some of the herbs and herbal preparations have been scientifically shown to have influence upon uterine activity while others have not. Each herb and herbal preparation identified above will be discussed in terms of alleged use, actual mode of action and toxicity.

Red Raspberry (Rubus strigosus)

Red raspberry has been reported to be beneficial in relieving labor pain (Lucas, 1966), as a remedy in menorrhagia, and as a method of regulating labor contractions (Spoerke, 1980). Red raspberry exerts a relaxing effect upon the smooth muscle of the uterus and intestine in animals. No cases of toxic ingestions from raspberry tea have been reported. Chronic bowel or kidney irritation may occur because of the presence of tannin in the raspberry leaves (Spoerke, 1980).

Blue Cohosh (Caulophyllum thalictroides)

Blue cohosh may be used as a menstrual and childbirth aid or for induction of labor contractions (Malstrom, 1981). Spoerke (1980) reported that blue cohosh exerts a stimulatory effect on uterine muscle but probably not in normal doses. Signs and symptoms of toxicity associated with the use of blue cohosh include nausea, vomiting, and gastritis. Large amounts may produce headache, thirst, pupillary dilatation, muscular weakness, incoordination, cardiovascular collapse, and convulsions (Spoerke, 1980).

Golden Seal (Hydrastis species)

Golden seal has been used to stop postpartum bleeding (Spoerke, 1980) and allay nausea during pregnancy

(Heinerman, 1975; Lucas, 1966). Golden seal has been shown to decrease uterine bleeding, but the mechanism of action is unknown and inferior to ergot. The effect in decreasing uterine hemorrhage may be related to increased stimulation of the uterine muscle, resulting in decreased bleeding (Spoerke, 1980). Morton (1977) described golden seal as being a hemostat in uterine hemorrhage. Large amounts of golden seal are poisonous and can prove fatal. Death is the result of central nervous system stimulation, paralysis and respiratory failure (Spoerke, 1980).

Chamomile (Anthemis flores, Anthemis nobilis)

Chamomile may be used as an antispasmodic or digestive aid (Spoerke, 1980). Kay (1977) documented the use of chamomile tea in a Mexican-American barrio. During the last month of pregnancy, women took chamomile tea every night. When contractions commenced the amount of tea consumed was increased believing that the tea would make the contractions stronger if the woman was truly in labor or cease the contractions if the labor was false. Chamomile contains a volatile oil which may irritate mucous membranes and act as a spasmolytic. Other substances which are contained in chamomile may act as spasmolytic agents and exert anti-inflammatory and antibacterial properties; however, the substances are in

such small concentrations that they do not exert much physiological activity (Spoerke, 1980). Large amounts of chamomile can produce vomiting. Chamomile can cause skin rashes or serious allergic reactions in individuals known to be sensitive to ragweed pollens (Spoerke, 1980; Lewis, 1978).

Blessed Thistle (Cnicus benedictus)

Ingestion of warm blessed thistle tea is a supposed aid to lactation (Heinerman, 1975). Spoerke (1980) reported that ingestion of blessed thistle stimulates gastric secretion, through the action of an unidentified volatile oil and a bitter substance. Large amounts have produced emesis. Other toxic effects are not known (Spoerke, 1980).

Marshmallow (Althea officinalis)

Marshmallow, which is composed of 37% starch, 25-35% mucilage, 11% pectin, 11% sugar, 1.25% fat and 2% asparagine, has only demulcent and emollient actions (Spoerke, 1980). Morton (1977) found that marshmallow has been used in the treatment of asthma, nerve injuries, blood loss and inflammation. Malstrom (1981) noted use of marshmallow as an aid to lactation. No evidence of toxicity has been reported (Spoerke, 1980).

Valerian root (Valeriana officinalis)

Morton (1977) described use of valerian root as a sedative, antispasmodic and stomachic agent. Valerian root produces a slight central nervous system depressant effect, which has led to use as a tranquilizer for treatment of hysteria, hypochondriasis, nervous unrest, insomnia, and convulsion; however, valerian root most likely exerts a psychological rather than a physiological effect (Spoerke, 1980). The exact mechanism in producing central nervous system depression is not known. Large quantities of the herb have produced vomiting and drowsiness (Spoerke, 1980).

Ginseng (Panax quinquefolium)

Ginseng was recommended for treatment of a variety of ailments, including anemia, atherosclerosis, depression, diabetes, edema, hypertension, stress and ulcers (Spoerke, 1980). A strong brew of ginseng several times a day has been recommended for faintness after childbirth (Wollnoffer & Rottauscher, 1965). Ginseng allows the body to adapt to certain biological stresses, exhibiting the following effects: stimulation of the midbrain, heart and blood vessels; stimulation of the general metabolism; stimulation of the central nervous system; reduction in blood sugar levels; stimulation of the adrenal cortex; stimulation of aerobic and anaerobic

glycolysis in the liver and kidneys with no significant increase in oxygen consumption; and promotion of weight gain by affecting the expenditure of energy stored in the muscle. Poisoning is not common; however, there are a number of glycosides in ginseng, so the herb should not be taken in large quantities (Spoerke, 1980).

Squaw Vine (Mitchella repens)

Squaw vine was recommended to ensure proper fetal development during pregnancy, to ease parturition, and to aid in developing lactation. Squaw vine was also suggested for treatment of insomnia, diarrhea and edema. The pharmacology is not well understood; however, squaw vine appears to be an astringent and diuretic. Squaw vine may cause diarrhea but no cases of toxicity have been reported (Spoerke, 1980).

Bayberry (Myrica cerifera)

Bayberry has been used internally as an astringent and an emetic; externally, as a treatment for ulcers. Bayberry is also used in conjunction with other herbs in the treatment of the common cold, diarrhea, and jaundice. Heinerman (1975) noted that bayberry "has an excellent general effect on the female organs; it also has an excellent influence on the uterus during pregnancy and makes a good douche" (p. 116). Bayberry contains a resin and a saponin compound, myricinic acid, which

acts as an astringent. The saponin content has caused vomiting, but no cases of toxicity have been reported (Spoerke, 1980).

Blood Purifying Combination

This herbal combination is composed of red clover, chaparral, poke root, oregon grape and burdock (Woolley, 1981). Red clover (Trifolium species) contains some phenolic substances and two glycosides, but the physiological activity is presently undescribed. Red clover has been used as an antispasmodic and an expectorant in the treatment of bronchitis and whooping cough. There is no evidence of toxicity with red clover ingestion (Spoerke, 1980). Chaparral (Larrea divaricata) contains gums, resins, protein, esters, acids, alcohol, small amounts of sterols, sucrose, and volatile oils. Chaparral has been used as an antiseptic, diuretic, expectorant and tonic (Moulton, 1979). Research has been conducted at Utah University and the University of Nevada at Reno regarding the use of chaparral as a treatment for cancer (Kadans, 1970). Poke root (Phytolacca americana) contains saponins, irritants which produce emesis and catharsis, and a resin, which produces central nervous system depression. Poke root has been used in the treatment of rheumatism, as an ingredient in an ointment with antiparasitic properties,

and as a laxative. Only use of the herb as a laxative has a scientific rationale. The fruit of poke root is less toxic than the leaves; the leaves, less than the stems; and the stems, less than the root. Mitogens contained in the plant may cause aberrations when absorbed through broken skin. Excessive poke root ingestion causes peripheral blood plasmacytosis, nausea, vomiting, diarrhea and respiratory cardiac depression and death (Spoerke, 1980). Oregon grape (Beberis repens) is identical to barberry (Berberis vulgaris) in nearly all respects but is more effective for liver malfunctions and staphylococcus infections. Oregon grape exerts a mild stimulatory effect on the thyroid gland (Moore, 1979). Berberine, the major component of oregon grape and barberry, produces vasodilatation and decreases the heart rate through vagal stimulation. Low doses of berberine exert a stimulatory effect on the myocardium, while higher doses have a depressant effect. High doses also depress respiration, stimulate intestinal smooth muscle, and decrease bronchial constriction. Berberine demonstrates mild anesthetic properties upon the mucous membranes and antiparasitic properties upon Leishmani tropica. Berberine, as an astringent, has been used to treat diarrhea. Berberine is also a bitter which has been used to stimulate gastric secretions and thus aid dyspepsia. Excessive doses of berberine have produced mucous membrane

irritation, nausea, vomiting, hypotension, heart failure and convulsions (Spoerke, 1980). Burdock (Lappa or Arctium lappa) contains several volatile oils, inulin, tannin, and artiin, a bitter glycoside. Pharmacological action is not known, although the tannin and glycoside could have some action. Burdock has been used as a remedy for gouty and syphilitic disorders and in the treatment of chronic skin diseases. Data suggest that burdock is nontoxic; however one person exhibited anticholinergic symptoms after ingesting the herb. Analysis revealed high atropine levels, an indication that atropine may have been a contaminant or an unknown principle of burdock (Spoerke, 1980).

Female Reproductive Organ Aid

The combination consists of blessed thistle, cayenne pepper, cramp bark, ginger, golden seal and red raspberry (Woolley, 1981). Blessed thistle, golden seal and red raspberry have been previously discussed. Cayenne (Capsicum frutescens) contains the volatile oils capsaicine, capsacutin, and capsico, which are strong irritants that are used externally as a counterirritant and internally as a gastric stimulant. Cayenne causes a strong sensation of heat when swallowed and an intense burning when applied to the skin. Cayenne has been used as a poultice, as a digestive aid, and as a systemic purifying agent.

Excessive ingestion produces mucous membrane irritation which causes nausea, vomiting and diarrhea. Cayenne can be harmful in patients with ulcer disease or chronic irritation of the bowel (Spoerke, 1980). Cramp bark (Viburnum opulous) has been used to treat uterine infection and septic poisoning during childbirth, as a diuretic, and as a source of Vitamin C (the berries) (Krochmal, 1973). Cramp bark contains scapoletin and other coumarins which act as antispasmodics. Preparations of cramp bark have been used as uterine sedatives (Tyler, 1976). Ginger (Zingiber species) contains cineole, citral, borneol, a yellow oil possessing phenolic properties, zingerone, and a volatile oil. Ginger is carminative and has been used to relieve dyspepsia and colic. Usual doses are not toxic; however, patients with preexisting bowel disorders should use caution when taking this herb (Spoerke, 1980).

Five Week Formula

A variety of herbal combinations are currently sold in Utah as "five week formulas." Red raspberry, blue cohosh, and pennyroyal must be contained in the combination in order for the preparation to be classified as a five week formula; the other herbs may vary (Woolley, 1981). One five week formula sold by a local health food store consists of red raspberry, blue cohosh, squaw vine,

blessed thistle, black cohosh, pennyroyal and lobelia. Red raspberry, blue cohosh, squaw vine and blessed thistle have been discussed previously. Black cohosh (Cimicifuga species) contains isoferulic, palmitic and oleic acids, tannins, recemosin, cimicifugin (the only active ingredient) and other unidentified principles. Black cohosh is a bitter and an astringent and has been used in the treatment of dyspepsia. Excessive intake of the herb can produce nausea and vomiting (Spoerke, 1980). Pennyroyal (Mentha pulegium) consists of a yellow or greenish-yellow oil which is approximately 85% the ketone, puligone. Puligone is a central nervous system depressant, a mucous membrane irritant, and an extrenal rebefacient. Excretion of the volatile oil irritates the kidney and bladder and reflexively stimulates uterine contraction. Very small amounts of the oil (four milliliters) can produce convulsions. Women have been severely poisoned when using pennyroyal as an abortifacient. Signs and symptoms of toxicity include nausea, vomiting, diarrhea, and central nervous system depression (Spoerke, 1980). Lobelia (Lobelia inflata) contains several substances, the active ingredient being lobeline. Lobeline stimulates and then depresses the autonomic ganglia. Only a stimulatory effect is exerted upon the medullary centers, primarily the emetic center. Lobelia has been used as an expectorant, as a treatment for asthma, and

as an emetic. Lobelia is extremely potent, and small doses can produce toxicity. Toxic manifestations include nausea and vomiting, stupor, tremors, paralysis, convulsions, and death (Spoerke, 1980).

Vaginal Bolus

Vaginal bolus is an herbal combination composed of squaw vine, slippery elm, golden seal root, and comfrey root. Squaw vine and golden seal have been discussed previously. Slippery elm (Ulmus fulva) is composed of a polysaccharide, a mucilage similar to linseed, small amounts of starch, tannins, calcium oxalate and calcium. The mucilage component acts as a demulcent. Slippery elm has been used in a poultice for inflammed wounds and skin diseases, as an expectorant, and as a gastrointestinal demulcent. Toxic ingestions have not been reported, but slippery elm has been known to cause skin rashes (Spoerke, 1980). Comfrey (Symphytum officinale) contains mucilage, allantoin, tannins, starch and two alkaloids. Vitamins A and C, potassium and phosphorus are also present in large quantities. Allantoin may be of some benefit in healing abraded skin. Comfrey acts as an astringent because of the tannin components and as an external demulcent because of the mucilage. Comfrey has been used in poultices for wound healing, as an internal demulcent, a diuretic, and a bulk laxa-

tive. Toxicity is unlikely. Excessive intake of comfrey could possibly produce central nervous system depression because of the alkaloid components. Comfrey is contraindicated in those persons requiring dietary restriction of potassium (Spoerke, 1980).

Antimiscarriage Formula

Antimiscarriage formula is composed of two herbs, false unicorn and lobelia. Lobelia has already been discussed. False unicorn (Chamaelirium luteum) is 9.5% saponin glycoside chamaelirin and is a diuretic, emetic, irritant and vermifuge. False unicorn has been used in the treatment of menopause and prevention of miscarriages, but any effect upon the uterus is doubtful. False unicorn has also been used as an appetite stimulant and treatment for colic. Excessive doses of false unicorn have produced nausea and catharsis; however, chamaelirin is one of the least toxic of the saponins (Spoerke, 198).

In summary, data suggest that red raspberry, blue cohosh, and golden seal exert some influence on uterine function, which lends support to popular use. Ginseng has been shown to have certain properties which aid the body to cope with stresses and therefore could possibly help women recover after the stress of childbirth. The three herbs popularly recommended for promoting lactation (blessed thistle, marshmallow, and squaw

vine) have not been shown to influence lactation. Although chamomile, marshmallow, squaw vine and bayberry have been popularly recommended for use during pregnancy, parturition and lactation, there was no scientific evidence to support their use. Blue cohosh, golden seal, and chamomile can produce serious and/or lethal side effects if consumed in sufficient quantities. Less serious side effects (nausea, vomiting) occur if blessed thistle and valerian root are used excessively. No cases of toxicity were associated with the use of red raspberry, squaw vine, bayberry or marshmallow.

Herbal combinations are more difficult to summarize in terms of action, use and toxicity. Blood purifying combination, which is composed of red clover, chaparral, poke root, oregon grape and burdock, contains herbs which exhibit a variety of actions and have a wide range of toxicity. Red clover, which has been used as an antispasmodic and expectorant, and burdock, which has been used for the treatment of gout and syphilitic disorders are both nontoxic. Oregon grape, an astringent and bitter, and poke root, an antiparasitic agent and laxative, have serious and/or lethal side effects if taken excessively. Toxicity is not specified for chaparral, which is used as a diuretic, expectorant and tonic. Female reproductive organ aid consists of blessed thistle, cayenne pepper, cramp bark, ginger, golden seal and

red raspberry. Cramp bark, golden seal, and red raspberry exert an effect upon the uterus. Ginger is an effective carminative. Golden seal can produce lethal side effects if taken in excess. Cayenne and ginger can create gastrointestinal disturbances in persons with preexisting stomach or bowel disease. Five week formula must contain red raspberry, blue cohosh and pennyroyal in order to be classified as five week formula. A common five week formula consists of red raspberry, blue cohosh, pennyroyal, squaw vine, blessed thistle, black cohosh and lobelia. Some of the herbs in the formula exert an influence on the uterus, others have no effect and some are potentially lethal if taken in excess. Vaginal bolus consists of squaw vine, slippery elm, golden seal root, and comfrey. Both slippery elm and comfrey exhibit demulcent properties which would be soothing to the vagina. Local application of vaginal bolus precludes systemic absorption of the herbs and therefore this combination is without toxicity. Slippery elm may cause local skin irritation. Antimiscarriage formula, which consists of false unicorn and lobelia, presents certain dangers because of the presence of lobelia. False unicorn probably does not have an effect upon the uterus but is relatively nontoxic.

CHAPTER III

THEORETICAL FRAMEWORK

General systems theory acknowledges that identical or isomorphic laws can be found in different disciplines and applied to a variety of systems irrespective of the nature of the entities involved (Bertalanffy, 1968). General systems theory provided the theoretical framework for this research. Major definitions and principles of general systems theory will be discussed and then applied to women in Utah who use herbs during pregnancy, parturition, and six weeks following delivery.

Barrien (1968) defined a system as follows:

> A system is defined as a set of components interacting with each other and a boundary which possesses the property of filtering both the kind and the rate of flow of inputs and outputs to and from the system. . . .A system processes inputs and expels products which are, in some detectable characteristic, different from the inputs. (pp. 14-15)

Each component of a given system can be a system in itself, as a focal system, subsystem, or suprasystem. Individual systems are differentiated by boundaries causing separations. A boundary may be identified by a differentiation in the relationships existing between the

components inside the boundary and those relationships which are outside the boundary. Boundaries are semi-permeable in that not all input may enter or output may leave the system (Berrien, 1968).

Elements which enter a system are termed inputs, and those which leave a system are termed outputs. Elements entering the system are acted upon, or converted, by resources within the system. Conversion of the input produces a result, outcome, or output (Van Gigch, 1978).

A system may be either open or closed. An open system is characterized by the ability to receive and respond to inputs, whereas a closed system lacks this ability and functions solely within itself (Berrien, 1968).

Principles and definitions of general systems theory can be applied to women in Utah regarding the use or nonuse of herbs. The individual woman is an open living focal system capable of receiving and converting input. The individual woman, the focal system is also a subsystem of the larger system of family and friends and together both are subsystems of the larger system, the community in which they live. The community is a subsystem of the state; the state, the country; and the country; the world. Each of the subsystems identified above accepts input, converts input to output, and expels output. Outputs are communicated from sub-

system to subsystem. Thus, through a chain of inputs, conversions and outputs, the individual woman may receive information regarding the use of herbs, if input is able to cross the boundary.

The boundary of the individual woman is the body, which is mediated by the senses of taste, touch, smell, hearing and sight. The boundary is semipermeable in that not all input may be received. The individual woman must first be exposed to information regarding the use of herbs, hearing or reading information about the use of herbs. Next, the individual will touch, smell and taste the herb before actually ingesting a given herb. Based on a decision made through use of the senses, the woman may or may not decide to use herbs, to accept input.

Several authors noted an increase in the use of herbal medicines for a variety of reasons. Changes in attitude toward conventional medicine and herbs and cost of medical care can be viewed as input from the suprasystem, the world, to the focal system, the woman. Penso (1978) stated that increased consumption of medicinal plants in developing countries could be due to the fact that people were recognizing the danger of misuse of chemicals and pharmaceuticals and observing the deleterious effects of chemical pollution upon the natural environment. Plant medicines are often viewed as milder

with fewer side effects than manufactured medication. Callan (1979) reported that reliance upon herbal medicines was increasing in some U.S. subcultures. Part of the reason for increasing reliance on the substances was due to the increased cost of traditional medicine and medical care. The use of herbal medicines has been associated with the trend toward self care.

The suprasystems of community, family and friends also provide input for the individual woman. Herbalists, health food stores, and written works within the community provide a wealth of information regarding the use of herbs. If the woman comes from a Latter Day Saint background, the use of herbs may have been passed from generation to generation. Joseph Smith, founder of the Mormon church, strongly believed in Thomsonian medicine, which relied heavily on the use of herbal preparations (Heinerman, 1975).

The individual woman thus receives information from many different sources. Worldwide trends, community sources, family, friends and written works about herb use provide output regarding the use of herbs. Output becomes input for the woman and must transverse the boundary of the woman's system if the herbs are to be used. The permeability of the woman's boundary is influenced by her life's experiences, which are formed by interaction with family and friends, education and input

received over the course of a lifetime. Thus, depending on background, some women will use herbs and others will not. The permeability of the boundary is also affected by the timing of the arrival of the input. For example, a woman might use red raspberry during the first trimester for relief of nausea; five week formula during the last trimester in preparation for parturition; and blessed thistle during the postpartum period for promotion of lactation. Input received through the senses is acted upon within the woman's system and then converted to output which then becomes input for surrounding systems.

Figure 1 is a general systems model of women in Utah who use herbs during pregnancy, parturition and six weeks following delivery.

Summary

General systems theory provided the theoretical framework for this study. Concepts that were utilized to describe the use of herbs by women in Utah were open system, focal system, subsystem, suprasystem, semipermeable boundary, communication, input, conversion and output. The individual woman is the focal system for several concentric suprasystems which provide input into the focal system regarding the use of herbs. Information is communicated from one system to another until

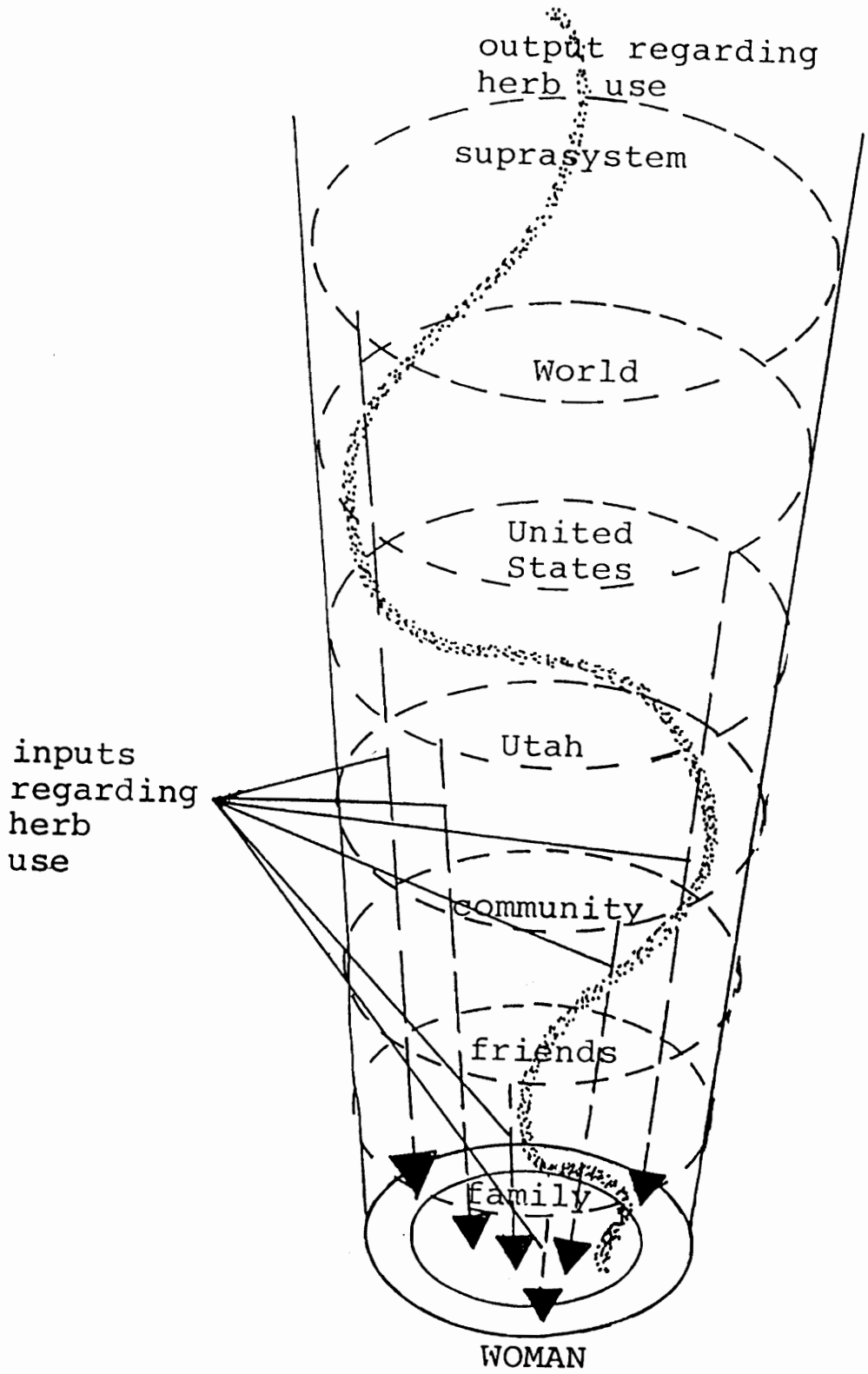

Figure 1. General systems model of women in Utah who use herbs during pregnancy, parturition and six weeks following delivery.

reaching the woman's semipermeable boundary where mediation by the five senses occurs. If the woman's boundary is permeable, the input is then processed and converted to output which may be either favorable or unfavorable regarding the use of herbs. Output from the woman's focal system is then communicated back through the concentric systems.

Research Questions

1. What was the usage of herbs during pregnancy, parturition and six weeks postpartum by women in Utah who delivered live births in 1981?

2. What were the major sources of education regarding the use of herbs by women in Utah who delivered live births during the year 1981?

Operational Definitions of Terms

Herb

Herb was defined as any plant or plant part that was valued for medicinal qualities (Webster's New Collegiate Dictionary, 1979, p. 530).

Usage of Herbs

The term usage of herbs referred to the time, method, frequency and purpose of specific herbs.

Time. The utilization of herbs during pregnancy, parturition, and/or six weeks postpartum.

Method. The utilization of an herb or herbal preparation as an infusion, decoction, encapsulation or douche.

1. Infusion: An herbal preparation was made by boiling water and then adding herbal leaves and/or stems (Woolley, 1981).

2. Decoction: An herbal preparation was made by adding water to roots and/or bark and then bringing the solution to a boil (Woolley, 1981).

3. Encapsulation: An herb was taken in capsule form.

4. Douche: The instillation of an herbal solution into the vagina.

Frequency. How many times during the day, week, or month that the herbs were used.

Purpose of use. Relief or regulation of labor pains, childbirth aid, control of postpartum bleeding, relief of nausea during pregnancy, promotion of proper fetal development, relief of faintness after childbirth and/or promotion of lactation were defined as various purposes of use.

Specific herbs. The specific herbs addressed in this research project were red raspberry, blue cohosh, golden seal, chamomile, holy thistle, marshmallow,

valerian root, ginseng, squaw vine, bayberry and individual herbs documented by the questionnaire respondents.

Pregnancy

Pregnancy was defined as the period of time from conception to initiation of labor.

Parturition

Parturition was the period of time from onset of labor to delivery of the placenta.

Six Weeks Postpartum

The period of time from the delivery of the placenta to six weeks later was defined as six weeks postpartum.

Women in Utah Who Delivered Live Births During the Year 1981

Those women who delivered a viable fetus between January 1 and November 1, 1981 while residing in Utah qualified under the definition established. Parity and age were not limiting factors.

Major Sources of Education

Major sources of education were defined as prenatal care providers, herbalists, family, friends, books, magazines, newspaper, television, or other sources as specified by the respondent.

CHAPTER IV

METHODS AND RESEARCH DESIGN

Design of the Study

The design was a descriptive, retrospective survey employing a questionnaire designed by the researcher. Data were obtained to answer the two research questions.

Study Population

The population was composed of women in the state of Utah who delivered a live birth during 1981. With assistance from the Bureau of Health Statistics, a computerized random sample was selected from a list of birth certificates filed between January 1 and November 1, 1981. Unwed mothers were eliminated from the sample in order to avoid invasion of privacy. Two hundred and eight questionnaires were mailed.

Criteria for Inclusion

The participants had to meet the following criteria in order to be included in the study:

1. Delivery of a live birth between January 1 and November 1, 1981 while residing in Utah
2. Married at the time the infant was born

3. Able to read, understand and write English

4. Agree to participate by returning the completed questionnaire.

Assumptions and Limitations

The assumption was made that subjects would be able to adequately remember herbal practices that were followed during the pregnancy, parturition and postpartum period of the live birth delivered in 1981.

There were four major limiations. First, Utah's population is unique in the use of herbs, therefore results cannot be generalized to women of other states. Second, the sample size was limited because of financial and time constraints. Third, women who aborted, delivered a nonviable fetus, or who were not married at the time of giving birth were eliminated from the sample. Thus, a significant portion of the population was excluded. Speculations can be generated regarding the use of herbs during pregnancy by women who lost infants and wonder what effect the use of herbs had on the unsuccessful outcome of the pregnancy. Fourth, women who used herbs would be less likely to return the questionnaire because of fear of censure, which would produce a bias in the results.

Instrument

The instrument for data collection was a question-

naire (Appendix A), designed by the researcher, and consisting of 12 multiple choice questions. Response choices were in a fixed closed end format for three questions; in a fill-in format for three questions; and in a fixed closed ended format with optional fill-in for six questions. The questionnaire was divided into two sections. Section I addressed demographic data, Section II acknowledged actual herb usage and educational sources.

Prior to mailing, the questionnaire was evaluated by a panel of experts and found to be clear and readily understood. The instrument was not tested for face validity and reliability since all data obtained would be nominal and would not require sophisticated statistical analysis.

Data Collection Procedure

Two hundred and eight questionnaires were mailed with a cover letter (Appendix B) in February 1982. Three weeks after mailing, follow-up postcards (Appendix C) were mailed to those women who had not returned questionnaires making total data collection time five weeks.

CHAPTER V

DATA ANALYSIS AND FINDINGS

Sample

Two hundred and eight women were randomly selected from birth certificates on file with the Department of Vital Statistics between the months of January 1 and November 1, 1981. To be included in the sample, participants had to meet the following criteria: a) deliver live births between January 1 and November 1, 1981 while residing in Utah; b) married at the time the infants were born; c) able to read, understand and write English, and d) agree to participate by returning the completed questionnaire. Two unwed mothers were included initially in the sample but were later excluded to avoid the possibility of invasion of privacy.

Questionnaire Return

Two hundred and eight questionnaires were mailed. Ninety-nine completed questionnaires were returned, yielding a 48% response. Nine questionnaires were returned by the postal service because of incorrect address or no forwarding address.

Statistics

The data obtained from this study were nominal; therefore chi square, frequency, percentage and means were the statistics used in the analysis of the data. Chi square was used to describe the relationship between certain demographic variables and herb use where cell size permitted. Percentage, frequency, and means were used to describe herb use. Weighted means were calculated for the analysis of educational sources regarding herb use.

Data Analysis

Data were analyzed under four subheadings:

1. Demographic information obtained from the questionnaire
2. Herb use, which included type, frequency, time period, and method of herb utilization
3. Purpose and perceived efficacy of herb use
4. Educational sources regarding herb use

Demographic Data

Demographic variables assessed by the questionnaire were age, marital status, religious preference, ethnicity, educational level, county of residence, prenatal care provider, and obstetrical care provider.

Ninety-nine subjects participated with 25% reporting

use of herbs. Seventy-five percent indicated that herbs had not been used during pregnancy, labor and delivery nor six weeks following delivery. The majority of the subjects in the sample (62%) were between the ages of 25 and 36; 33% were younger than 25; and 5% were between the ages of 37 and 49. Eight percent of the women less than 25 years of age and 17% of the women between 25 and 36 years of age were herb users. There were no herb users in the age category 37 to 49 years of age (Table 1).

Chi square was used to analyze the association between age and herb use. The original cell size did not facilitate the performance of chi square analysis of herb use. Subsequently, age groups were combined into two: women younger than 25 and women 25 or older. The calculated chi square value was not found to be significant.

All of the respondents, with the exception of one divorced woman, were married. All were Caucasian, except one woman of Spanish origin.

Eighty-nine percent of the respondents were members of the Church of Jesus Christ of Latter Day Saints (LDS); 2% were Catholic, 2% were Presbyterian; 2% were Protestant; 2% had no religious affiliation, 1% was Christian; 1% was a Reformed Latter Day Saint and 1% belonged to the fellowship of the Way Biblical Research.

Table 1

Age Categories of Herb Users and Herb Nonusers

	Less than 25	25-36	37-49
Herb users (n=25)	8 (8%)	17 (17%)	0
Herb nonusers (n=74)	25 (25%)	44 (44%)	5 (5%)
Sample total (n=99)	33 (33%)	62 (62%)	5 (5%)

No respondents indicated a Jewish or Lutheran religious preference. Twenty-two percent of the respondents were herb users and were members of the LDS church; 3% were herb users and non-LDS; 67% were herb nonusers and LDS; and 8% were herb nonusers and non-LDS (Table 2). Cell size did not allow for chi square analysis of the relationship between herb use and religion.

The minimum level of educational preparation by any respondent was high school and/or technical school. Thirty-nine percent of the respondents completed one to four years of college; 31% had a college or advanced degree; and 29% had a high school diploma or attended a technical school. Among those women with one to four years of college, 12% reported having used herbs during at least one of the specified time periods; among the women with college or advanced degrees, 8% reported having used herbs; and among those women with a high school or technical school education, 5% reported use of herbs (Table 3). Chi square was used to analyze the association between educational preparation and herb use and no significant differences were found.

Ninety-five of the 99 women participating in the study answered the question regarding county of residence. For convenience and clarity, counties were divided into two groups (rural and urban) based on the classification by the United States Census Bureau's Standard Metropolitan

Table 2

Religious Preference of Herb Users and Herb Nonusers

	LDS	Non-LDS
Herb users (n=25)	22 (22%)	3 (3%)
Herb nonusers (n=74)	66 (67%)	8 (8%)
Total population (n=99)	88 (89%)	11 (11%)

Table 3

Educational Levels of Herb Users and Herb Nonusers

	High School and Technical School	College 1-4 yrs	College or Advanced Degree
Herb user (n=25)	5 (5%)	12 (12%)	8 (8%)
Herb nonuser (n=74)	24 (24%)	27 (27%)	23 (23%)
Total population (n=99)	29 (29%)	39 (39%)	31 (31%)

Statistical Areas. Under this classification, Salt Lake, Weber, Davis and Utah counties were classified as urban, and all other counties within the state were classified as rural. Within this classification, 22% of the sample population lived in rural counties, and 78% lived in urban counties. Seven percent of the total population were herbal users who lived in rural counties; 17% used herbs and lived in urban counties (Table 4). Chi square analysis of association between county of residence and herb usage was not significant.

Physicians provided prenatal care for 94% of the respondents and obstetrical care for 95%. Two percent received prenatal care from physician-nurse midwife teams; the physician delivered one infant, and the nurse midwife the other. One percent received prenatal and obstetrical care from a nurse midwife and one percent received prenatal and obstetrical care from a lay midwife. Twenty-three of twenty-five women (23% of the sample population) who reported using herbs during at least one of the time periods specified received prenatal and obstetrical care from a physician; one herb user (1%) received prenatal and obstetrical care from a nurse midwife; and another herb user (1%) received prenatal and obstetrical care from a lay midwife (Table 5).

Table 4

County of Residence of Herb Users and Nonusers

	Rural	Urban
Herb users (n=24)	7 (7%)	17 (18%)
Herb nonusers (n=71)	14 (15%)	57 (60%)
Total population (n=95)	21 (22%)	74 (78%)

Table 5

Prenatal and Obstetrical Care Providers for Herb Users and Nonusers

	Prenatal Care				Obstetrical Care			
	M.D.	CNM	M.D. & CNM	Lay Midwife	M.D.	CNM	M.D. & CNM	Lay Midwife
Herb user (n=25)	23(23%)	1(1%)	--	1(1%)	23(23%)	1(1%)	--	1(1%)
Herb non-user (n=74)	71(71%)	1(1%)	2(2%)	--	72(72%)	2(2%)	--	--
Total population (n=99)	94(94%)	2(2%)	2(2%)	1(1%)	95(95%)	3(3%)	--	1(1%)

Note. CNM = Certified nurse midwife

Herb Usage

Twenty-five percent of the respondents (N=99) reported use of herbs. As operationally defined, herb use included specific herbs that were utilized; frequency of herb use during pregnancy, labor and delivery and six weeks following delivery; form in which herbs were utilized (tea, capsule, or douche); and purpose and perceived efficacy of herb use. Purpose and perceived efficacy of herb use will be discussed separately.

Specific herbs utilized. The following herbs and herbal combinations, listed on the questionnaire, were used by at least one woman during at least one of the specified time periods: red raspberry; blue cohosh; golden seal; chamomile; holy thistle; squaw vine; bayberry, female reproductive organ aid; five week formula; and antimiscarriage formula. Marshmallow, valerian root, ginseng, blood purifying combination, and vaginal bolus were not used by anyone. Herbs or herbal combinations that were not listed on the questionnaire but were used by women during at least one time period included collinsonia, lobelia tincture, spearmint, rosehip, licorice root, comfrey, alfalfa, unspecified herbal tea, catnip, mint, papaya enzyme, rosemary, yarrow, currant, tranquility, kelp cascara sagrada, Herb Lax, and Roast O Roma. All herbs listed above were utilized by individual women.

Frequency of use during specified time periods. Frequency referred to the number of herbs taken by each woman; the number of women using each herb; and how frequently each herb was utilized by each woman. Specific time periods referred to pregnancy, labor and delivery, and six weeks following delivery.

During pregnancy, herb use for individual women ranged from one to nine different herbs. During the six weeks following delivery, herbal use ranged from one to seven; eight women used one herb each, and one woman used seven herbs. No herbs were utilized during labor and delivery.

Red raspberry, the herb taken by the greatest number of women during their pregnancies, was taken in some form by 58% of the women who used herbs during pregnancy; chamomile, by 33%; blue cohosh, by 25%; five week formula; by 25%; squaw vine, by 13%; golden seal, by 12%; holy thistle, by 1%; female reproductive organ aid, by 1%; and antimiscarriage formula, by 1%.

The most commonly used herb during the six week period following delivery was chamomile, which was used by 13% of the women who reported herb use. Red raspberry was utilized by two women (8%); holy thistle and bayberry were each used by one woman (4%) (Table 6).

Questionnaire respondents were asked to indicate the number of times per day, week or month that a particular

Table 6

Herbs Used by Women in Utah During Pregnancy and Six Weeks Following Delivery

Herb	Women Using Herb During	
	Pregnancy (n=25)	Six weeks following delivery
Red raspberry	14 (58%)	2 (8%)
Blue cohosh	6 (25%)	--
Golden seal	3 (12%)	1 (4%)
Chamomile	8 (33%)	3 (13%)
Holy thistle	1 (4%)	1 (4%)
Squaw vine	3 (13%)	--
Bayberry	--	1 (4%)
Female reproductive organ aid	1 (4%)	--
Five week formula	6 (25%)	--
Aintimiscarriage formula	1 (4%)	--

Note. Mean herb use = 3; Mode herb use = 2.

herb was utilized. For purposes of comparison, all answers were converted into the number of times per month that each herb was used by an individual. Some respondents indicated the total number of times a given herb was used; for example, an herb was used only 12 times. Table 7 depicts the use frequencies of herbs which are listed in the questionnaire and which were used during pregnancy.

Several herbs were added that were used during pregnancy by one or two women; collinsonia; hibiscus, eyebright, rosehip; clover; lobelia; mint; spearmint; licorice; comfrey; alfalfa; kelp; herbal tea; catnip; papaya; black currant; tranquility; cascara sagrada; and parsley. Herbal combinations that were listed included Herb Lax and Roast O Roma. Frequency of use was not specified for the majority of herbs or herbal combinations listed.

Relatively few herbs were used during the six week period following delivery; thus, the herbs which were listed in the questionnaire and added by the questionnaire respondents will be discussed collectively. The following herbs were used during the six week period following delivery: red raspberry; chamomile; holy thistle; bayberry; mint; Herb Lax; Herb tea; alfalfa; rosemary; yarrow; fennel; and yellow dock. Chamomile, utilized by three women, was the herb most commonly used during the time period. Red raspberry was utilized

Table 7

Frequency of Herbal Use During Pregnancy by Women in Utah

Frequency of Use	Number of Women Using								
	Red Raspberry	Blue cohosh	Golden seal	Chamomile	Holy thistle	Squaw vine	Female repro. organ aid	5-week formula	Antimiscarriage formula
One time use									
1			1						
2-10									
11-20				1				1	
21-30									
31-40									
41-50								1	
Times/month									
1				1					
2									
3	2	1		1					
4	1								
5				1					
8				1	1				
10									
12	2			2					1
20	1								
28		1				1			
30	3	1		1					
60	2	1	1						
80	1								
90	2	1				1	1		
120									
Not specified		1	1					4	
n =	14	6	3	8	1	3	1	6	1

by two women; all other herbs listed above were each used by individual women.

Herbs can be utilized in the form of a tea, capsule, or douche. The following herbs were most commonly used as teas: chamomile; squaw vine; bayberry; and herbs which were written in by respondents. Red raspberry, blue cohosh, golden seal, female reproductive organ aid, five week formula, and antimiscarriage formula were most commonly used in capsular form. Holy thistle was used 50% of the time as a tea, and 50% of the time as a capsule. Only one herb, golden seal, was used in a douche (Table 8).

Purpose and Perceived Efficacy of Herb Use

Respondents were asked to indicate which herbs had been utilized for the following purposes: relief of morning sickness; regulation or relief of labor pains; childbirth aid; control of bleeding after delivery; promotion of proper fetal development; relief of faintness after childbirth; and promotion of lactation. Respondents were then asked to state whether an herb was effective or noneffective, supported by rationale.

Herbs utilized for relief of morning sickness included chamomile, red raspberry, alfalfa, lobelia, papaya, rosehip, catnip and mint. Three women used chamomile, and all three found the herb to be effective

Table 8

Form in Which Herb was Utilized During Pregnancy and Six Weeks Following Delivery by Women in Utah

Herb	Number of Women Who Used Herb as a				
	tea	capsule	douche	Not specified	n=
red raspberry	7	8	--	--	14*
Blue cohosh	1	5	--	--	6
Golden seal	--	2	1	--	3
Chamomile	8	--	--	--	8
Holy thistle	1	1	--	--	2
Squaw vine	3	--	--	--	3
Bayberry	1	--	--	--	1
Female reproductive organ aid	--	1	--	--	1
5-week formula	--	2	--	4	6
Antimiscarriage formula	--	1	--	--	1
Other herbs	6	2	--	18	19*

*indicates use of herb in multiple forms, therefore n is not equal to sum of other uses.

in the relief of morning sickness. Three women utilized red raspberry; two women found it effective and one did not. Alfalfa was utilized by two women; one found alfalfa to be effective, the other felt that it was ineffective. Lobelia, papaya, rosehip and catnip were each used separately by different women. All four herbs were thought to be effective in relieving morning sickness. Mint was utilized by one respondent and found to be ineffective in the relief of morning sickness.

Herbs utilized in the relief or regulation of labor pains included red raspberry, five week formula (blue and black cohosh, squaw vine, lobelia, pennyroyal and red raspberry), chamomile, and golden seal. Four women utilized red raspberry; one respondent stated it was effective in relieving Braxton-Hicks contractions, two did not notice any effect while taking red raspberry; and one reported it made her so nauseated that she had to discontinue use of the herb. Two women used five week formula; one respondent did not specify if the herbal combination was effective or not in relief and regulation of labor pains; the other reported that the formula caused nausea. One woman utilized chamomile and found the herb was helpful in relieving Braxton-Hicks contractions. Another respondent reported use of golden seal but noticed no effect in the relief or regulation of labor pains.

Herbs used as childbirth aids included five week formula, red raspberry, and blue cohosh. Five week formula was utilized by five women. Two women felt that the formula was effective as a childbirth aid: one, because she had an easy delivery and the other for unspecified reasons. One woman who used five week formula did not notice any effect. Two others suffered adverse effects; one, nausea and the other, heartburn. One woman used red raspberry and found the herb to be effective as a "uterine tonic." Two women used blue cohosh and both found the herb effective as a childbirth aid. One woman did not specify why the herb was effective, the other stated that blue cohosh was effective because labor began five hours after drinking the tea.

Herbs utilized for control of bleeding after delivery included rosemary, yarrow, and yellow dock. One woman who used both rosemary and yarrow believed the herbs were effective in aiding expulsion of the placenta, decreasing flow after delivery and acting as a uterine tonic. The one respondent who used yellow dock stated the herb was effective and that it restored iron levels in the blood.

Herbs utilized to promote proper fetal development included eyebright, hibiscus, rosehip, clover and comfrey. Eyebright, hibiscus, rosehip, and clover were all utilized by one woman, who felt that the herbs were

effective in promoting proper fetal development. Rosehips provided Vitamin C and clover decreased the acidity and increased iron assimilation. Comfrey, used by another individual, was considered to be questionably effective. Comfrey was used as a source of additional vitamins and minerals. Only one herb, clover, was used to relieve faintness after childbirth and the respondent found no relief of the faintness.

Herbs utilized to promote lactation included chamomile, holy thistle, fennel, red raspberry, herb tea, and alfalfa. Chamomile, holy thistle, and fennel were all used by the same respondent and found to be effective for unspecified reasons. Red raspberry was utilized by one respondent and considered to be effective because breast milk was available eight hours after delivery. One respondent took herb tea simply for the fluid volume and considered the tea to be beneficial in aiding lactation. One respondent utilized alfalfa tea and did not feel that the tea was useful in aiding lactation since she noted the same effect (increased milk volume) when increasing her water intake. Two repsondents noted that yeast was useful in promoting lactation, although yeast is not considered an herb (Table 9).

Several respondents listed several different purposes for which herbs were used. Herbs which were listed in the questionnaire and other herbs which the respondents

Table 9

Herbs Utilized for Prenatal and Obstetrical Symptoms by Women in Utah

Use/Herb	n	Effective	Not Effective	Adverse Effect
For Relief of Morning Sickness				
Chamomile	3	3		
Red raspberry	3	2	1	
Alfalfa	2	1	1	
Lobelia	1	1		
Papaya	1	1		
Rosehip	1	1		
Catnip	1	1		
Mint	1		1	
For Relief or Regulation of Labor Pains				
Red raspberry	4	1	2	1
5 week formula	2		1	1
Chamomile	1	1		
Golden seal	1		1	
As a Childbirth Aid				
5 week formula	5	2	1	2
Red raspberry	1	1		
Blue cobosh	2	2		
For Control of Bleeding After Delivery				
Rosemary	1	1		
Yarrow	1	1		
Yellow dock	1	1		

Table 9 Continued

Use/Herb	n	Effective	Not Effective	Adverse Effect
<u>To Promote Proper Fetal Development</u>				
Eyebright, Hibiscus, Rosehip, Clover --	1	1		
Comfrey	1	1		
<u>To Relieve Faintness After Childbirth</u>				
Clover	1		1	
<u>To Promote Lactation</u>				
Chamomile, Fennel, Holy thistle --	1	1		
Red raspberry	1	1		
Herb tea	1	1		
Alfalfa	1		1	

listed were utilized to achieve the desired results.

Herbs which were utilized for tension and stress relief included chamomile, mint, alfalfa, hibiscus, Roast O Roma, clover, lobelia, spearmint, red raspberry, black currant, tranquility and parsley. One respondent used a combination of chamomile, mint, alfalfa, hibiscus, Roast O Roma, and clover for relaxation and tension relief and found the combination to be effective in reducing stress. One respondent used a combination of lobelia, spearmint, chamomile, red raspberry, black currant and tranquility and also found the combination to be effective in reducing tension and stress. One respondent utilized parsley and found the herb not to be effective in stress reduction because of inconsistent use.

Herbs used to decrease water retention were peppermint, herb tea, red raspberry and kelp. One respondent used a combination of peppermint, herb tea, and lemon water as a diuretic and found the combination to be effective in reducing water retention. One respondent used red raspberry alone and found the herb effective as a diuretic. One respondent used a combination of zinc and kelp and found the combination effective as a diuretic.

Herbs used to relieve constipation included Herb Lax and cascara sagrada. Herb Lax and cascara sagrada

were each used separately by individual women, and both were found to be effective laxatives.

The following herbs were each used by individual respondents for a variety of reasons. One respondent used collinsonia as a treatment for varicose veins and found the herb to be effective as a treatment for the problem. No specification of how the herb was utilized or why collinsonia was believed effective as a treatment for varicosities was delineated. One respondent used an unknown herb for the treatment of toxemia of pregnancy and found the herb to be effective in decreasing the symptoms of toxemia. One respondent used a douche made from golden seal and found effective treatment of vaginal yeast infections. Red raspberry was used by one respondent to stop spotting during the second and fourth months, but the spotting did not cease. One respondent used red raspberry to strengthen the uterine muscles but did not specify whether or not red raspberry was beneficial. One respondent used licorice root to relieve faintness before childbirth and found "energy restored in two to three minutes." One respondent used spearmint for the treatment of heartburn and found the herb effective for this purpose.

Educational Sources

Respondents were asked to indicate and rank the scores from which any information was obtained

regarding use of herbs during pregnancy, labor and delivery, and six weeks following delivery. Educational sources listed in the questionnaire included prenatal care provider, herbalist; health food source; LDS friends or relatives, non-LDS friends or relatives; books; magazines, newspapers, and/or television; and/or other sources which the respondent was asked to specify. Sixteen women (64%) listed LDS friends or relatives as a source of information regarding use of herbs; twelve women (48%), books; eight women (32%), non LDS friends or relatives; eight women (32%), magazines, television, and newspapers; six women (24%), health food source; four women (16%), prenatal care provider; four women (16%), herbalist; and four women (16%), other sources. Other sources listed include chiropractor, Professional Medical Assistant Journal, herbal chart, naturopath in an Ashram (a Darma sect), and Kundalini Yoga class.

Weighted means were calculated for each of the sources above to determine which sources were considered the most important by the respondents as a group. Sources, ranked in decreasing order of importance, were LDS friends and relatives (1.5); other sources (2); health food source (2.2); magazines, newspapers, and television (2.3); prenatal care provider (2.5); non-LDS friends and relatives (2.5); herbalist (2.75); and books (2.8) (Table 10).

Table 10

Ranking of Educational Sources Regarding Use of Herbs by Women in Utah

Educational Sources	n	Rank order						Weighted Mean
		did not rank	1	2	3	4	5 6	
LDS friends & relatives	16	1	10	3	1	1		1.5
Other sources	4		1	2	1			2.0
Health food source	6	1	1	3		1		2.2
Magazines, newspapers, television	8		4	1	1	1	1	2.3
Prenatal care provider	4	4	1	1	2			2.5
Non-LDS friends & relatives	8		3	2	1	1	1	2.5
Herbalist	4		1		2	1		2.75
Books	12	1		6	2	2	1	

In summary, data concerning herbal use during pregnancy, labor and delivery, and six weeks following delivery were compiled from questionnaires completed by 99 subjects. Twenty-five of the respondents reported use of herbs during pregnancy and the six-week period following delivery. No herbal use was reported during labor and delivery. The remaining part of the chapter will discuss the findings.

Discussion of Findings

The purpose of this investigation was to describe herb utilization during pregnancy, parturition, and six weeks following delivery and to identify educational sources regarding herb utilization by women in Utah. Demographic findings are discussed in relation to herb usage and then the findings used to answer the two research questions.

Demographic Data

Two hundred and eight questionnaires were mailed and 99 completed questionnaires were returned. Twenty-five of those women returning questionnaires reported use of herbs during pregnancy and/or parturition.

The greatest percentage (17%) of herb users were between the ages of 25 and 36. The remaining herb users were younger than 25. No women in the category 37 to 49 reported use of herbs. If individual ages had been

ascertained, statistical analysis might have revealed an association between herb use and age; however, such an association is doubtful.

All respondents, with the exception of one divorced woman, were married. Single mothers were eliminated from the sample to avoid possible embarrassment and invasion of privacy. Thus, no statement can be made regarding association of herbal use and marital status since a significant portion of the population was purposely eliminated from the sample.

The vast majority of respondents (89%) were members of the Church of Jesus Christ of Latter Day Saints, an expected finding in the state of Utah. The majority of herb users (22%) also indicated an LDS religious preference, which was in keeping with the total population.

The greatest percentage of herb users (12%) and herb nonusers (27%) had between one and four years of college. Academic interests were so varied that no academic pattern emerged. The respondent who demonstrated the most extensive use of herbs was a nurse with a Masters Degree in Maternal/Newborn Nursing. Nurses have traditionally been denied prescriptive privileges. Use of herbs may have been viewed as an acceptable alternative by the respondent with the degree in Maternal/Newborn Nursing.

The majority of the sample lived in counties clas-

sified as urban. Chi square analysis did not reveal any significant difference in herb usage in urban as opposed to rural counties. An expected finding would have been a greater occurrence of herb use in rural counties where access to traditional medical care is not as readily available as in urban counties.

The majority of herb users (23%) received prenatal and obstetrical care from physicians. One of the four women who received all or part of prenatal and obstetrical care from nurse-midwives reported use of herbs. The respondent who received prenatal and obstetrical care from a lay midwife also reported use of herbs. Herbal use by the respondent who saw a lay midwife for care was anticipated, but herb use by those respondents seeing physicians was surprising. The physicians were most likely unaware or ignored herbal practices followed by their clients. One respondent listed the prenatal care provider, a physician, as an educational source regarding herb usage. No statement can be made regarding the association of herb use and prenatal/obstetrical care provider because of insufficient sample size.

Conceptually, an individual woman may be viewed as a focal system with a semipermeable boundary which is mediated by the five senses. Information regarding herb use may or may not cross the semipermeable boundary, depending on several variables: age and education, which

influence an individual's ability to perceive and process information; surrounding systems, such as family, friends, religious affiliations, and the community, which provide input; and ethnic background which provides input through established traditions.

Results of this study demonstrated that age, education and community location do not influence a woman's ability to receive and process information within her system regarding use of herbs. No statements can be made regarding the influence of marital status, religious preference, and race because of insufficient sample size, a major limitation.

Herb Use, Purpose of Use, and Perceived Efficacy

Any woman who used at least one herb during pregnancy, parturition, or six weeks following delivery was considered to be an herb user. The highest incidence of herb usage occurred during pregnancy, relatively few herbs were used during the six weeks following delivery; and no herbs were utilized during parturition. Average number of herbs used per respondent during pregnancy was three; during the six weeks following delivery, each of eight respondents used one herb, and one respondent used seven. The actual amounts of each herb used and the frequency with which the herb was utilized is unclear because of the way the question was worded.

Respondents specified how many times per day, week, or month a particular herb was utilized but were not asked to specify amount or total number of days, weeks or months during a specific time period that the herb was utilized; thus, there is no way to determine and compare total amounts of herbs consumed by different respondents. More women reported use of herbal teas than capsules. Only one woman used an herbal douche.

Herbs utilized for relief of morning sickness. The herbs which were used for the purpose of alleviating the symptoms of morning sickness included red raspberry, chamomile, alfalfa, lobelia, papaya, rosehip, catnip and mint. Data suggest that red raspberry (a smooth muscle relaxant), chamomile (a spasmolytic), papaya (which contains the digestive enzyme papain), rosehip (an astringent), and mint (a carminative) exhibit certain physiological properties which would be useful in the relief of nausea (Spoerke, 1980). All the herbs mentioned above were considered effective in relieving morning sickness except red raspberry and mint. One of three respondents utilizing red raspberry and the only respondent utilizing mint did not feel that the herbs were effective in relieving morning sickness. Alfalfa, lobelia, and catnip, which were considered effective by some respondents and ineffective by others, in the relief of morning sickness, do not exhibit physiological proper-

ties which would be useful in the relief of nausea. Very small doses of lobelia can, in fact, produce nausea and vomiting, which are symptoms of toxicity (Spoerke, 1980).

Herbs utilized for relief or regulation of labor pains and as childbirth aids. Those herbs which were employed to regulate labor pains or to aid childbirth included red raspberry, five week formula, blue cohosh, chamomile, and golden seal. Red raspberry has been shown to relax the smooth muscle of the uterus in animals (Spoerke, 1980), and the same effect could occur in humans; therefore there is a possible physiological basis for use of red raspberry in relieving and/or regulating labor pains. Two women found red raspberry effective, one noted no effect, and one became nauseated while using the herb in conjunction with five week formula. Red raspberry is nontoxic (Spoerke, 1980); the nausea was most likely due to one of the herbs in the five week formula; blessed thistle, blue cohosh, black cohosh, pennyroyal or lobelia.

Five week formula must contain red raspberry, blue cohosh and pennyroyal in order to be classified as a five week formula (Wooley, 1981). A five week formula sold by a local health food store consists of red raspberry, squaw vine, blessed thistle, black cohosh, blue cohosh, pennyroyal and lobelia. Four of the women who

indicated use of five week formula specified the herbs contained the formula sold by the health food store. The other two women indicated use of five week formula but did not specify the contents, which created uncertainty about contents of the formula utilized. One woman using an unspecified five week formula stated the formula was effective in regulating and relieving labor pains. Another respondent who utilized an unspecified formula became nauseated. Four women utilized the five week formula containing red raspberry, squaw vine, blessed thistle, black cohosh, blue cohosh, pennyroyal and lobelia; one respondent believed the formula was effective; one specified no effectiveness or ineffectiveness; one noticed no effect and one became nauseated and discontinued use of the formula (the same respondent who reported becoming ill while drinking red raspberry tea). Blessed thistle, blue cohosh, black cohosh, pennyroyal and lobelia, if taken in excess could produce nausea and vomiting (Spoerke, 1980). Amounts of five week formula consumed were not specified; therefore the nausea could have resulted from excessive intake or other unknown factors.

Both respondents who used blue cohosh believed the herb was effective as a childbirth aid: one woman did not specify why; the other respondent stated labor began five hours after drinking blue cohosh tea.

Popular (Malstrom, 1981) and scientific literature (Spoerke, 1980) suggested blue cohosh exerts a stimulatory effect on uterine muscle, thus there is support for use of blue cohosh as a means of regulating labor and as a childbirth aid.

Chamomile was utilized by one respondent and considered effective in relieving Braxton-Hicks contractions, yet scientific data do not support use of chamomile for this purpose. Chamomile has been used by some Mexican-Americans in the belief that the tea made from the herb will make true labor contractions stronger and false labor contractions cease (Kay, 1977). Spoerke (1980) described chamomile as a mucous membrane irritant and a spasmolytic; no effects upon uterine function were mentioned.

Golden seal was documented as useful in stopping postpartum bleeding (Spoerke, 1980) and relieving morning sickness (Heinerman, 1975; Lucas, 1966), but data were not found to support the use of golden seal in regulating labor contractions. One respondent used golden seal as a childbirth aid and noticed no effect with use of the herb, which is an expected finding.

Herbs utilized for control of bleeding after delivery. Those herbs reported as being used to control bleeding following delivery were rosemary, yarrow and yellow dock. One respondent utilized a combination of

of rosemary and yarrow; the other used yellow dock. Rosemary and yarrow were utilized to decrease flow, expel the placenta and act as a uterine tonic. The respondent believed the herbs were effective. Rosemary has been used as a carminative and emmenagogue, but the action of rosemary is related to the irritating property of the volatile oil, which lends more credence to use of rosemary as a rubefacient in liniment (Spoerke, 1980). Yarrow has been shown to decrease clotting time in rabbits for approximately forty-five minutes without serious side effects (Spoerke, 1980). Assuming the same action occurs in humans with ingestion of yarrow, the herb could be useful in decreasing postpartum bleeding by decreasing clotting time. Any effect noticed by the respondent was most likely due to the action of the yarrow.

Yellow dock, consisting primarily of potassium oxalate, penetrates tissue and creates a wound through mechanical action of the oxalate crystals (Spoerke, 1980). The respondent utilized yellow dock as an iron supplement after childbirth, but literature does not support use of yellow dock for this purpose.

Herbs used for promotion of proper fetal development. Those herbs used to promote fetal development included rosehip, eyebright, clover, hibiscus and comfrey. Rosehip, eyebright, clover and hibiscus were all utilized by one respondent to ensure proper fetal

development and were considered effective for this purpose. Rosehip was utilized as a source of Vitamin C, which is necessary for development of connective and epithelial tissue. The respondent's previous child had been born with a blocked lacrimal duct, so rosehip was ingested to prevent recurrence of the condition in the unborn child. Rosehip is a good source of Vitamin C (Spoerke, 1980), but excessive intake of Vitamin C during pregnancy can produce Vitamin C deficiency in the newborn. Amounts of rosehip taken were not specified by the respondent. Eyebright has been used in combination with golden seal as a lotion for eyestrain (Spoerke, 1980), but no sources suggested use of the herb internally to promote proper development of the eye. A speculation can be made that the respondent believed taking eyebright would prevent development of a blocked lacrimal gland in the new infant. Review of the literature did not suggest any medicinal uses for hibiscus. Coon (1974) reported use of the mucilaginous seed pod of hibiscus as a vegetable and the flower for a dye. DeWit (1966) reported use of the hibiscus flower for ornamental purposes. Therefore, the motive for using hibiscus for ensurance of proper fetal development was unclear. Clover was utilized by the respondent to decrease acidity in the stomach and thereby increase iron absorption in the gut. Spoerke (1980) reported that

no evidence existed supporting the principles contained in red clover as physiologically active; therefore, use of red clover to decrease acidity and thus promote iron absorption is unsubstantiated in the literature.

Comfrey, utilized by one respondent as a source of vitamins and minerals, is a good source of potassium, phosphorus, and Vitamins A and C (Spoerke, 1980). Comfrey was considered questionably effective by the respondent.

The herb used to relieve faintness after childbirth. One herb was employed in relieving faintness after childbirth, clover. It was utilized by one respondent and was considered ineffective. Clover does not exert any physiological action (Spoerke; 1980), therefore lack of any effect is not surprising. Ginseng has been recommended to restore energy after childbirth (Wollnofer & Rottauscher, 1975), but no respondents reported use of ginseng for this purpose.

Herbs utilized to promote lactation. Those herbs used to aid lactation included chamomile, fennel, holy thistle, red raspberry, unspecified herb tea and alfalfa. Holy thistle has been popularly recommended for this purpose (Heinerman, 1975), but none of these herbs have been reported to exert a physiological effect upon lactation. All respondents except one stated these herbs were effective in promoting lactation. A possible

explanation for the perceived effectiveness of the herbs was that increased fluid intake would benefit milk production and the relaxation from consuming a warm drink would aid the "let down reflex."

Other purposes for which herbs were used. Other purposes reported included tension and stress relief, reduction of water retention, relief of constipation, reduction of varicosities, treatment of toxemia, treatment of vaginal yeast infection, stopping spotting, strengthening of uterine muscles, faintness before childbirth and relief of heartburn.

Chamomile, mint, alfalfa, hibiscus, Roast O Roma and clover teas were utilized by one respondent and a combination of lobelia, spearmint, chamomile, red raspberry, black current and tranquility teas were utilized by another respondent for relief of tension and relaxation. A third respondent utilized parsley for relaxation purposes. Both respondents using the tea combinations stated the herbs were effective relaxants, yet none of the herbs in either combination exhibit sedative properties. A possible explanation for the perceived effectiveness was the psychological benefit derived from relaxing and enjoying a warm beverage. Parsley was not considered an effective relaxant. Review of the literature did not reveal use of parsley as a sedative.

Herbs utilized for diuresis included peppermint,

herb tea, and lemon water; red raspberry and kelp; and kelp with zinc. None of the herbs listed are diuretics, yet the three respondents stated the herbs were effective in reducing water retention. The positive diuretic effect was most likely the result of increased fluid within the body.

Herbs used for relief of constipation included Herb Lax and cascara sagrada. Herb Lax, which consists of buckthorn bark, alfalfa, fennel seed, blue malva flower, licorice root, anise seed, rhubarb root, and culver root, and cascara sagrada are known effective cathartics. Both women supported the herbs as effective laxatives.

Collinsonia was utilized and considered effective in the treatment of varicosities, by one respondent. Collinsonia has been used as a diuretic and as a treatment for headache, cramps, and indigestion by people in Appalachia (Krochmall, 1973). Information about the physiological action of the herb was not found. The reason for perceived effectiveness of the herb in treatment of varicosities was not clear.

An unknown herb was used in the treatment of toxemia and was considered effective by the respondent using the herb. Review of the literature did not reveal any herbs that have been used successfully in the treatment of toxemia.

Golden seal, similar in action to ergot (Spoerke, 1980), was used successfully in the treatment of vaginal yeast infections by one respondent, yet review of the literature did not provide evidence for use of golden seal as an antifungal agent. Reasons behind the effective use of golden seal in the treatment of yeast infections were unclear.

Red raspberry was utilized by one respondent to stop uterine bleeding during pregnancy and by another respondent to strengthen uterine muscles. Red raspberry was considered ineffective in stopping uterine bleeding and questionably effective in strengthening uterine muscles. The herb has been shown to have a relaxant effect upon uterine smooth muscle (Spoerke, 1980), which would not contribute to strengthening of uterine muscles or exert an effect upon spotting.

Licorice was used to relieve faintness before childbirth and considered effective for that purpose by one respondent. Licorice has mild mineralocorticoid properties. The herb also acts as a spasmolytic and exerts a mild estrogenic effect (Spoerke, 1980). No data supporting use of licorice to restore energy were found. Speculations can be made regarding the psychological benefits of using licorice as a means of restoring energy.

Spearmint was used successfully by one respondent in the treatment of heartburn. Spearmint is a known

carminative (Spoerke, 1980) and would be useful in relieving heartburn.

In summary, herb users can be divided into three groups. One group of respondents utilized herbs for relief of physiological symptoms, use of red raspberry, five week formula and blue cohosh in the regulation of labor pains; use of herbal laxatives, Herb Lax and cascara sagrada, for relief of constipation; and use of carminatives such as spearmint for relief of heartburn. The second group of respondents utilized herbs according to popular recommendations, use of chamomile as a labor regulator and use of rosemary as an emmenagogue. The third group did not seem cognizant of either physiological principles or popular recommendations, use of golden seal as a means of regulating labor; use of eyebright as a means of preventing congenital eye deformities, and use of hibiscus to ensure proper fetal development are examples.

Educational Sources

The major educational source utilized by the majority of respondents using herbs was LDS friends and relatives, which is not surprising since 89% of the sample population were LDS. The three herb users who were not LDS did not list LDS friends or relatives as educational sources. The most important sources for each of the three non-LDS herb users were a lay midwife,

magazines, television and newspapers, and an herbalist.

Sources of education regarding use of herbs in decreasing order of importance for the group as a whole are as follows: LDS friends and relatives; other sources; health food source; magazines, newspapers and television; prenatal care provider; non-LDS friends and relatives; herbalist; and books.

The respondent utilizing the greatest number of herbs for the greatest number of purposes was a nurse with an M.S. degree in maternal-child nursing. Many of the herbs utilized by this respondent demonstrated knowledge of physiological attributes of the herbs, as in use of red raspberry as a childbirth aid. Other herbs appeared to have been utilized without knowledge of physiological properties. Use of eyebright as a preventive measure against development of blocked lacrimal ducts is an example of this type of use. The most important source of information regarding use of herbs for this respondent was an herbalist (a Mexican-American anthropologist).

Conceptually, educational sources provided input into each woman's system regarding the use of herbs. The source of input was dependent on the concentric systems surrounding the individual woman as well as her semipermeable boundary. For example, women who were LDS utilized other LDS friends and relatives as the main source of input regarding herb usage. The herb

users who were non-LDS did not receive or process any input from LDS sources.

Input was altered within each woman's system and became output. Occasionally, the altered input became inaccurate output. An example of this phenomena was the use of eyebright as previously described.

CHAPTER VI

SUMMARY AND IMPLICATIONS

Summary

Rationale and Objectives

Reliance upon natural foods and substances is increasing as people are becoming more aware of the hazards associated with chemical use and pollution of commercial products. Use of herbal plants for medicinal purposes is an integral part of the dependence upon natural products. A problem arises in that effects of plant products upon the body are not known or fully understood (Lewis, 1978). Many herbal preparations are dangerous and may even be lethal. For example, chamomile has caused anaphylactic shock or allergic rhinitis in persons sensitive to ragweed pollen (Lewis, 1978). Pennyroyal oil was used as an abortifacient by a young woman who subsequently died (Sullivan, Rumack, Thomas & Peterson, 1979).

Herbal preparations may be used to treat a variety of ailments and conditions, but the consumer needs to be aware of the actions, benefits, and potential dangers

associated with herbal usage. Since reliance upon the substances is increasing, health care providers need to be aware of herbal practices followed by clients so that educational intervention can take place. The first step in the educational process is identifying actual herb usage within the community.

Herbs can be used for many purposes at any time during the life cycle. The focus of this study was herb use during pregnancy, parturition, and six weeks following delivery. These particular times were of interest because of the susceptibility of the fetus and newborn to the effects of herbal practices. Most substances consumed by the pregnant mother cross the placenta and reach the fetus (Pritchard & McDonald, 1976), and herbal substances can reach the newborn through the mother's milk. Thus, herbal practices need to be identified so that appropriate educational intervention can take place.

The purpose of this investigation was to describe current herb use during pregnancy, parturition and six weeks following delivery by women in Utah and to identify educational sources utilized regarding herb usage.

Sample and Methods

The sample was chosen from all women in the state of Utah who delivered live births between January 1

and November 1, 1981. The respondents had to be married at the time of birth; unwed mothers were purposely eliminated from the sample.

Data were collected through the use of a questionnaire which was sent to 208 subjects. Consent for participation was implied by return of the questionnaire. Questionnaires were mailed February 22, 1982; followup postcards were mailed March 11, 1982; and data collection ended March 29, 1982, allowing a total of five weeks for questionnaire return.

Most of the data obtained were in nominal form, which did not allow for sophisticated statistical analysis. Frequency distribution, percentage, mean and chi square were the statistics used in the data analysis.

Findings

Ninety-nine completed questionnaires were returned. Seventy-five percent of the respondents reported no herb use, and 25% of the respondents reported using herbs during pregnancy and/or six weeks following delivery. No association was found between herbal use and age, educational level, or residence in a rural as opposed to an urban county. No conclusions could be drawn regarding the association between marital status, religious preference, race or prenatal/obstetrical care provider and herb use. All respondents, except one woman who was divorced, were married, and unwed mothers

were purposely eliminated from the sample; thus, no conclusions can be made regarding the association of herbal use and marital status. Eighty-nine percent of the respondents were LDS, and ten respondents declared other religious affiliations. All respondents were Caucasian, except one women of Spanish ancestry; thus no conclusions could be made regarding the association of herbal use and race. The vast majority of respondents received prenatal and obstetrical care from physicians. Three respondents saw physicians and/or nurse-midwives and one respondent received prenatal and obstetrical care from a lay midwife. One of the respondents seeing a nurse-midwife and the respondent who saw a lay midwife both reported use of herbs.

Any woman who utilized at least one herb during pregnancy, parturition or six weeks following delivery was considered to be an herb user. The highest incidence of herbal usage was during pregnancy; relatively few herbs were utilized during the six weeks following delivery; and no herbs were utilized during parturition. Average number of herbs used per respondent during pregnancy was three. During the six weeks following delivery, each of eight respondents used one herb, and one respondent used seven. The actual amounts of each herb consumed and the frequency with which the herb was used was unclear because of the way the question

was worded. Herbs were used more frequently as teas than in capsular form. Only one respondent used an herb in a douche. The most commonly used herb during pregnancy was red raspberry, followed by chamomile, blue cohosh, five week formula, squaw vine, golden seal, holy thistle, female reproductive organ aid, and anti-miscarriage formula. The most commonly used herb during the six weeks following delivery was chamomile, followed by red raspberry, holy thistle, and bayberry. Respondents mentioned other herbs which were utilized for individual purposes or those specified in the questionnaire. Reasons for use of herbal preparations included relief of morning sickness; relief or regulation of labor pains; childbirth aid; control of bleeding after delivery; promotion of proper fetal development; relief of faintness after childbirth; promotion of lactation; and other purposes specified by the respondents. The educational source considered most important by the respondents was LDS friends and relatives, followed by other sources; health food source; magazines, newspaper and television; prenatal care provider; non-LDS friends and relatives; herbalist; and books. Quality of these sources could not be evaluated.

Implications for Further Research

Replication of the study using a much larger sample

size, stratified according to race and prenatal/obstetrical care provider is necessary so that comparisons can be made between herbal usage and ethnicity and herbal usage and type of prenatal/obstetrical care provider. An anticipated finding is a greater incidence of herb use among women utilizing lay midwives.

Actual knowledge of herbs and their properties should be established in both the lay and health care populations so that educational needs can be determined. Research should be conducted to evaluate actual knowledge of herbal practices. Once the use and knowledge of herbs has been firmly established, investigations should be conducted to determine the effect of herbs upon the pregnant mother and her unborn child. The incidence of herb usage in the population who miscarried or delivered a nonviable infant needs to be evaluated.

A major flaw in this study was the inability to evaluate the quality of educational sources utilized. Sources of information regarding herb use need to be identified and appraised.

Implications for Nursing Practice

Nurse practitioners and other health care providers need to be aware of clients' herbal practices so that these practices can be incorporated into planning prenatal and obstetrical care. History of past and

current herbal parctices could be included in the antepartal history. Herbal use should be reassessed at the end of each trimester and during the postpartum period, since herbal practices change as needs differ. For example, a client might utilize a red raspberry or golden seal for relief of morning sickness during the first trimester. Five week formula is commonly used near term to prepare for parturition. Blessed thistle is used to promote lactation in the postpartum period.

Nurse practitioners need to be cognizant of the physiological properties, uses, and toxicities associated with herbs. Educational intervention can be directed toward preventing ingestion of dangerous preparations and toward utilization of herbs that are beneficial but not toxic. For example, extremely small amounts of lobelia would be fatal, yet red raspberry, which is nontoxic, is often helpful in relieving Braxton Hicks contractions. Nurse practitioners are in a position to support safe practices and discourage unsafe practices.

APPENDIX A

QUESTIONNAIRE

INSTRUCTIONS: These questions apply only to the pregnancy, labor and delivery, and six week period following delivery of the infant born in 1981.

For purposes of this study an herb is any plant or plant part that is used for its medicinal qualities.

Please check or write the response that most closely describes you.

I. BACKGROUND INFORMATION

1. Present age: ( ) under 25 ( ) 25-36 ( ) 37-49

2. Marital status: ( ) single ( ) married ( ) divorced
( ) separated ( ) widowed

3. In which county do you reside?_____

4. Please check the levels of schooling completed:

( ) grade school ( ) high school ( ) technical school

( ) college: Years attended_____

Degrees obtained_____

Major_____

5. Please indicate your religious preference:

( ) LDS ( ) Catholic ( ) Presbyterian
( ) Lutheran ( ) Jewish ( ) other _____
specify, please

6. Please indicate your ethnic origin:

( ) Caucasian ( ) Black ( ) Spanish ( ) Indian ( ) Vietnamese
( ) Chinese ( ) Other_____
please specify

7. Whom did you see for prenatal care?

( ) physician ( ) nurse midwife ( ) lay midwife ( ) no one
( ) Other_____
please specify

8. Who delivered your infant?

( ) physician ( ) nurse midwife ( ) lay midwife ( ) husband
( ) Other_____
please specify

II. HERBS USED DURING PREGNANCY, LABOR AND DELIVERY AND DURING THE SIX WEEK PERIOD FOLLOWING DELIVERY

1. Did you use <u>any</u> herbal preapration?

during pregnancy?	( ) yes	( ) no
during labor and delivery?	( ) yes	( ) no
during the 6 wks following delivery?	( ) yes	( ) no

<u>PLEASE NOTE</u>: If you answered "yes" to any of the above, please continue answering the questions that follow. If your answer was "no" to all of the above, you have completed this questionnaire. Please return it in the stamped, self-addressed envelope. Thank you for your participation in this study.

2. Presented below are several herbs which have been used during pregnancy, labor and delivery, and six weeks following delivery. Please place check marks in the appropriate columns to indicate when and how each herb was used. Under the column entitled, "number of times herb was used" please indicate the number of times you used a particular herb. For example, if you used red raspberry three times per week, you would enter a "3" under the column entitled week. Space has been allowed for you to write in herbs that you used but which have not been listed.

Herb	When Herb Was Used				How Herb Was Used			Number of Times Herb Was Used Per:		
	Pregnancy	Labor & Delivery	6 wks post delivery	Never	Tea	Capsule	Douche	Day	Week	Month
red raspberry										
blue cohosh										
golden seal										
chamomile										
holy thistle										
marshmallow										
valerian root										
ginseng										
squaw vine										
bayberry										

Herb	When Herb Was Used				How Herb Was Used			Number of Times Herb Was Used Per:		
	Pregnancy	Labor & Delivery	6 wks post delivery	Never	Tea	Capsule	Douche	Day	Week	Month
Herbal combinations: a) blood purifying combination										
b) female reproductive organ aid										
c) 5-week formula blood circulation combination										
d) vaginal bolus										
e) anti-miscarriage formula										
Other (specify)										

3. Listed below are reasons why herbs have been taken during pregnancy, labor and delivery, and six weeks after delivery. Beside each reason, list the herb or herbs that were used. If you did not use any herbs for a particular reason, please write "none" under the column entitled "herb or herbs used." In the next column, please indicate if you felt the herb/herbs were effective (yes) or were not effective (no). In the last column briefly state why you felt the herbs used were or were not effective.

Reason	Herb/Herbs Used	Effective/Noneffective		Why
a) Relief of morning sickness				
b) Relief or regulation of labor pains				
c) Childbirth aid				
d) Control of bleeding after delivery				
e) Promotion of proper fetal development				
f) Relief of faintness after childbirth				
g) Promotion of lactation				
Other (specify) reasons				

4. From the sources listed below, please indicate the areas from which you have learned anything about herbs. Please rank the sources according to their usefulness, i.e., place a "1" by the most useful source, a "2" by the second most useful source, and so forth. Rank only those sources which you utilized.

( )prenatal care provider
( )herbalist
( )"health food source"
( )LDS friends or relatives
( ) non-LDS friends or relatives
( ) books
( ) magazines, newspapers, television
( ) Other (please specify)_____

THIS IS THE END OF THE QUESTIONNAIRE. Please feel free to make any additional comments below. Thank you for your participation in this study.

APPENDIX B

COVER LETTER

Dear Parent:

You have been selected at random to participate in a study on the current use of herbal medicines during pregnancy, labor and delivery, and six weeks postpartum. Your response will be of great benefit in establishing the current use of herbs in the time periods mentioned above, even if you did not use any herbs. Your reply will be kept in strict confidence and no information that could identify you will be published or otherwise distributed.

Please be advised that you are giving your consent to participate in this study by returning the completed questionnaire. Please return the completed questionnaire within the next two weeks in the stamped, self-addressed envelope which I have provided. If you have any questions regarding this study, please feel free to contact the investigator at 486-2857 or 581-5073. Your participation is much needed and will be greatly appreciated.

Sincerely,

Claire Sunderland, R.N.
Master's student
College of Nursing
University of Utah

APPENDIX C

POSTCARD REMINDER

Dear Parent:

Two weeks ago you should have received in the mail a questionnaire regarding the use of herbs during pregnancy, labor and delivery and six weeks following delivery. Could you please return the completed questionnaire within the next week? If you never received or have misplaced the questionnaire, please contact me at 486-2857 and I will send you another questionnaire and a stamped, self-addressed envelope.

Thank you for your participation in this study.

Sincerely,

Claire Sunderland, R.N.
Masters student
University of Utah
College of Nursing

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